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ISO 9001:2000 CERTIFIED

CQCE/BBMP/NMK/W.No.37/2020-21

Date :12.09.2020

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency : **Sri. N M Krishnamurthy,** Contractor, Bangalore.
Name of Work : Comprehesive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Date of Testing : 10.9.2020 to 12.09.2020
Material Type : Wet Mix Macadam

As per MORTH Table 400-13

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit	23.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Asst. Executive Engineer
Yeshwanthpura Sub-Division
Bruhat Bangalore Mahanagara Palike

For CIVIL QUALITY CONSULTANTS & ENGINEERS

Authorised Signatory

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ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

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MORTH TABLE-400-11

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Date of Testing : 10.9.2020 to 12.09.2020
Material Type : Wet Mix Macadam

As per MORTH Table 400-13

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit	24.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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MORTH TABLE-400-11

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Date of Testing : 10.9.2020 to 12.09.2020
Material Type : Wet Mix Macadam

As per MORTH Table 400-13

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit	24.00	-
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

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Ref.No CQCE/BBMP/NMK/W.No.37/2020-21

TEST REPORT

Date: 21.09.2020

Client	:	**Executive Engineer,** RR Nagar Division, BBMP, Bangalore.
Agency	:	**Sri. N M Krishnamurthy,** Contractor, Bangalore.
Name of the work	:	Comprehensive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	21.09.2020

The results of the tests conducted on the bitumen sample using for Dense Graded Bituminous Macadam

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 "C, 1/10 mm	69	60 to 70
2	Softening point, "C	47	Min. 45
3	Ductility at 27"C, cm	100 >	Min. 50
4	Flash Point, "C	308	Min. 220

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CQCE/BBMP/NMK/W.No 37/2020-21

Aggregate Gradation Test

IS : 2386 Part I

14.09.2020

Client	Executive Engineer, RR Nagar Division, BBMP, Bangalore.
Agency	Sri. N M Krishnamurthy, Contractor, Bangalore.
Name of the Work	Comprehensive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Sample I / D	Hot mix Plant, Bangalore.
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	14.09.2020

Total Weight of Sample: 14475 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
37.50	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.50	620	4.3	4.28	95.72	90 - 100	
19.00	2239	15.5	19.75	80.25	71 - 95	
13.20	2150	14.9	34.60	65.40	56 - 80	
4.75	2456	17.0	51.57	48.43	38 - 54	
2.36	1832	12.7	64.23	35.77	28 - 42	
0.300	2480	17.1	81.36	18.64	7 - 21	
0.075	1856	12.8	94.18	5.82	2 - 8	

Total Weight of Sample: 14425 gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
37.5	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
26.5	725	5.0	5.03	94.97	90 - 100	
19	2365	16.4	21.42	78.58	71 - 95	
13.2	2410	16.7	38.13	61.87	56 - 80	
4.75	2356	16.3	54.46	45.54	38 - 54	
2.360	1680	11.6	66.11	33.89	28 - 42	
0.300	2525	17.5	83.61	16.39	7 - 21	
0.075	1689	11.7	95.32	4.68	2 - 8	

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CCE/BBMP/NMK/W.No.37/2020-21

Date: 14.09.2020

Aggregate Impact Value

IS: 2386 Part IV

Client	Executive Engineer, RR Nagar Division, BBMP, Bangalore.
Agency	Sri. N M Krishnamurthy, Contractor, Bangalore.
Name of the Work	Comprehensive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Source / Location	Hot mix Plant, Bangalore
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	14.09.2020

Sl No.	Details	Trial No. 1	2	3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	381	383	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	295	295	295	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	22.16	22.57	22.98	22.57

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27%

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CQCE/BBMP/NMK/W.No.37/2020-21

Aggregate Impact Value

IS: 2386 Part IV

Date: 14.09.2020

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Agency	Sri. N M Krishnamurthy, Contractor, Bangalore.
Name of the Work	Comprehensive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Source / Location	Hot mix Plant, Bangalore
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	14.09.2020

Sl No.	Details	Trial No. 1	2	3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	377	379	381	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	85.5	86.5	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294	293.5	294.5	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.02	22.56	22.70	22.43

Comments:

→ Maximum allowable Aggregate Impact value for Dense Graded Bituminous Macadam is 27%

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Aggregate Impact Value

IS: 2386 Part IV

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Name of the Work	Comprehensive development of Roads, drains and Footpath in Yeshwanthpura ward No.37 under PACKAGE-2019-20 RRN-DIV-(11), BBMP, Bangalore.
Source / Location	Hot mix Plant, Bangalore
Type of Mix	Dense Graded Bituminous Macadam
Date of Testing	14.09.2020

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	380	382	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	85.5	87	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	294.5	295	296	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	22.50	22.77	22.92	22.73

Comments:

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